

DERWENT-ACC-NO: 2005-190797

DERWENT-WEEK: 200520

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TITLE: Production of ceria-based oxygen ionic conductors doped with Gd_2O_3

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PRIORITY-DATA: 2003KR-0012474 (February 27, 2003)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
KR 2004077081 A	September 4, 2004	N/A	001	C01F 017/00

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
KR2004077081A	N/A	2003KR-0012474	February 27, 2003

INT-CL (IPC): C01F017/00

ABSTRACTED-PUB-NO: KR2004077081A

BASIC-ABSTRACT:

NOVELTY - A production method of Al_2O_3 (or Ga_2O_3)- Gd_2O_3 - CeO_2 powder for CeO_2 -based oxygen ionic conductors doped with Gd_2O_3 , is provided to form fine particles and lower sintering temperature by co-precipitating oxygen ionic conducting materials and sintering aid materials.

DETAILED DESCRIPTION - The CeO_2 -based oxygen ionic conductors doped with Gd_2O_3 are produced by the following steps of: (i) dissolving cerium nitrate, gadolinium nitrate, and aluminum nitrate in water, wherein the raw materials are measured in the proportions corresponding to $(\text{Ce}_0.8\text{Gd}_0.2\text{O}_1.9)_1\text{-x}(\text{Al}_2\text{O}_3)_x$ ($x=0.01\text{-}0.05$); (ii) forming coprecipitates by adding $(\text{NH}_4)_2\text{C}_2\text{O}_4\text{xxH}_2\text{O}$ and NH_4OH solution to the mixed solution until the pH of the solution is 10; (iii) washing coprecipitates with water and ethanol; (iv) drying at 120deg.C and calcining at 700deg.C for 1hr; (v) sieving dried powder to be less than 325mesh in size and pressing under pressure of 2000kg/cm²; (vi) sintering pressed compacts at 1400deg.C for 5hrs.

CHOSEN-DRAWING: Dwg.1/10

DERWENT-CLASS: E33 L02 L03

CPI-CODES: E34-C03; E34-E; E35-F; L02-A04; L02-G07E; L03-A02C;



$\text{Ce}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$ 용액

$\text{Gd}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$ 용액

$\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ 용액 혹은 $\text{Ga}(\text{NO}_3)_3 \cdot x\text{H}_2\text{O}$

혼합용액

$(\text{NH}_4)_2\text{C}_2\text{O}_4 \cdot \text{H}_2\text{O}$ 용액 혹은 NH_4OH

공집

세척

물, 예판용

어과

건소

120°C 10시간

하소

700°C 1시간

밀령

예판용

건소

120°C

제가름

325 mesh

상평

2000 kg/cm²

소선

1400°C, 5시간